

## PROPOSED

### Covered Source Permit Application Review Summary (Initial)

**Application File No.:** 0382-05

**Permit No.:** 0382-02-C

**Applicant:** Mid Pac Petroleum, LLC

**Facility Title:** Kawaihae Petroleum Bulk Loading Terminal  
61-3651 Kawaihae Road  
Kawaihae, Hawaii 96743  
UTM 204,044 E 2,218,162 N

**Mailing Address:** Mid Pac Petroleum, LLC  
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**Point of Contact:** Mr. Tim Clark  
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**Application Date:** March 1, 2006 and additional information dated April 19, 2006 and April 22, 2006

#### **Proposed Project:**

SICC 5171 (Petroleum Bulk Stations and Terminals)

The Kawaihae terminal was built in 1960. It is a marine transfer facility which receives products from barges via an underground pipeline system. It transfers products at the facility through a bottom loading rack with two loading positions, three loading arms, two additive headers and barge loading headers at the Kawaihae Harbor. A storage tank farm and an office/warehouse building are also located within the facility.

Under current operations, gasoline and diesel products are received from barges at the terminal via an underground pipeline supply system which originates at Kawaihae Harbor. The pipelines are connected to a valve box approximately 1,200 feet southwest of the terminal. The pipelines proceed northeast and cross Kawaihae Road and then north to the terminal.

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Currently, the main truck loading rack is a bottom loading rack and the barge loading headers are pipe connectors. All loading equipment is connected to the storage tanks in the tank farm. Gasoline and diesel products are received through the barge loading headers and stored in the storage tanks. The products are loaded to tank trucks through the loading arms and additive connectors. The loading terminal operates 8 hours per day, five days per week, and a half-day on Saturday, 52 weeks per year.

The terminal is currently permitted under Noncovered Source Permit No. 0382-01-N.

This application for an Initial Covered Source Permit is in response to a recent state law mandating that ethanol be blended into finished gasoline effective April 2, 2006. Mid Pac Petroleum, LLC intends to comply with this new law by storing ethanol in an existing vertical fixed roof storage tank modified with an internal floating roof (tank no. 4129), and adding/modifying related loading equipment to blend ethanol into the finished gasoline. These changes are described as follows:

### Storage Tank No. 4129

The existing storage tank no. 4129 previously contained solvent, kerosene, and diesel, but is currently out-of-service. The proposed project includes installation of a new double bottom floor and steel pan internal floating roof in storage tank no. 4129. This tank will be connected to a new ethanol injection system installed at the existing load rack.

### Ethanol Injection System

Ethanol will be delivered into out-bound tank trucks at the load rack. The proposed project includes installation of a new ethanol injection system consisting of three (3) new pumps and a 3-stream ethanol blender coupled with each of the two (2) existing gasoline loading arms. The third stream on the ethanol injection system will be vacant and has no proposed use at this time. The blend ratio for each loading arm will be 90% gasoline to 10% ethanol. The blend of 90% gasoline and 10% ethanol is designated as E10 unleaded. The main components of the ethanol injection system are the meter, pump headers, injectors, and related piping.

### Ethanol Off-Loading Skid

The proposed project includes installation of a new ethanol tank truck off-loading skid adjacent to the existing load rack. One (1) new pump header will serve to off-load ethanol by hose from tank trucks directly into an existing storage tank no. 4129. The main components of the off-loading skid are the hose, pump header, and related piping.

The rolling twelve (12) month throughputs of petroleum at the load rack are not expected to change as a result of this project because of the added volume of ethanol loaded (10% ) will be offset by a decreased volume of gasoline loaded (10%). Similarly, the added volume of ethanol off-loaded at the new off-loading skid will be offset by a decreased volume of gasoline off-loaded from barges.

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As a result of the proposed modification, storage tank no. 4129 will become subject to 40 CFR Part 60, Subpart Kb. Modifications are planned such that the tank will remain in compliance with roof deck and seal requirements outlined in 40 CFR §60.112b. The tank will be added to the existing terminal inspection and maintenance program, and will comply with visual inspection and notification requirements outlined in 40 CFR §60.113b. Monitoring and recordkeeping requirements outlined in 40 CFR §60.115b and 40 CFR §60.116b will be followed along with general provisions of 40 CFR Part 60, Subpart A.

As a result of storage tank no. 4129 being subject to a federal regulation (NSPS) and requiring a covered source permit, the remaining terminal equipment currently operating under Noncovered Source Permit No. 0382-01-N will be incorporated into this new covered source permit. A check for the application filing fee of \$1,000 for an initial covered source permit was received and processed.

### Equipment Description:

#### Petroleum Storage Tanks

Tank No.	Type of Tank	Storage Capacity (barrels)	Typical Product Stored	Year Built
4129	Internal Floating Roof	1,600	Ethanol	1959
4130	Internal Floating Roof	4,000	Gasoline	1959
4132	Internal Floating Roof	7,500	Gasoline	1959
4133	Internal Floating Roof	10,100	Gasoline	1959

#### Loading Units

Equipment	Product Dispensed	Year Built
Petroleum Truck Loading Rack	Gasoline/Ethanol Diesel No. 2	1960
Barge Loading Headers	Gasoline Diesel No. 2	1960

#### Maximum Allowable Throughputs of Loading Units

Product	Petroleum Truck Loading Rack	Barge Loading Headers
Gasoline	333,000 barrels per year	333,000 barrels per year
Ethanol	37,000 barrels per year	n/a
Diesel No. 2	212,000 barrels per year	212,000 barrels per year

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### Air Pollution Controls:

Tank VOCs are controlled using the following air pollution controls: Tank no. 4129 will be equipped with a NSPS Subpart Kb internal floating roof and seals. Tank nos. 4130, 4132 and 4133 are equipped with internal floating roofs and seals.

### Applicable Requirements:

#### Hawaii Administrative Rules (HAR)

- Title 11, Chapter 59    Ambient Air Quality Standards
- Title 11, Chapter 60.1    Air Pollution Control
  - Subchapter 1    General Requirements
  - Subchapter 2    General Prohibition
    - HAR 11-60.1-31    Applicability
    - HAR 11-60.1-39    Storage of volatile organic compounds
  - Subchapter 5    Covered Sources
  - Subchapter 6    Fees for Covered Sources, Noncovered Sources, and Agricultural Burning
    - HAR 11-60.1-111    Definitions
    - HAR 11-60.1-112    General Fee Provisions for Covered Sources
    - HAR 11-60.1-113    Application Fees for Covered Sources
    - HAR 11-60.1-114    Annual Fees for Covered Sources
    - HAR 11-60.1-115    Basis of Annual Fees for Covered Sources
  - Subchapter 8    Standards of Performance for Stationary Sources
    - HAR 11-60.1-161    New Source Performance Standards

#### Federal Requirements

- 40 CFR Part 60    Standards of Performance for New Stationary Sources (NSPS)
  - Subpart A    General Provisions
  - Subpart Kb    Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984

### Non-applicable Requirements:

#### Hawaii Administrative Rules (HAR)

- Title 11, Chapter 60.1    Air Pollution Control
  - Subchapter 7    Prevention of Significant Deterioration Review
  - Subchapter 9    Hazardous Air Pollutant Sources

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### Federal Requirements

40 CFR Part 52.21	Prevention of Significant Deterioration of Air Quality
40 CFR Part 60 Subpart XX	Standards of Performance for New Stationary Sources (NSPS) Standards of Performance for Bulk Gasoline Terminals
40 CFR Part 63  Subpart R	National Emission Standards for Hazardous Air Pollutants for Source Categories (Maximum Achievable Control Technologies (MACT) Standards) National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)

### **New Source Performance Standards (NSPS):**

The existing petroleum truck loading rack will not be subject to NSPS Subpart XX - Standards of Performance for Bulk Gasoline Terminals because the addition of the ethanol injection system does not trigger reconstruction or modification under NSPS.

Modification is not triggered since the emission rate (lb/hr) of VOCs will remain unchanged. Gasoline used for blending with ethanol will have a maximum vapor pressure of 10.6 psi. When it is blended with ethanol, the vapor pressure will not exceed 11.5 psi. Also, the total throughput of gasoline and ethanol loaded at the petroleum loadrack will remain unchanged.

Reconstruction is not triggered since there is no replacement of components of the existing petroleum loadrack. Also, the cost of the ethanol injection system is way below 50% of the cost of constructing a new petroleum loadrack. The cost of the ethanol injection system is \$89,360 and the cost of a new petroleum loadrack would be in excess of \$500,000.

### **Prevention of Significant Deterioration (PSD):**

This source is not a major stationary source nor are there modifications proposed that by itself constitute a major stationary source that is subject to PSD review. Therefore, PSD is not applicable.

### **Best Available Control Technology (BACT):**

A Best Available Control Technology (BACT) analysis is required for new covered sources or significant modifications to covered sources that have the potential to cause a net increase in pollution emissions above significant levels as defined in HAR §11-60.1-1. The table below shows that a BACT analysis is not required.

Pollutant	Potential Emissions <sup>1</sup> (tpy)	Significant Level (tpy)	Significant?
VOC	0.33	40	No

<sup>1</sup> Based on emissions from ethanol tank no. 4129, ethanol tank truck off-loading skid and ethanol injection system.

**Consolidated Emissions Reporting Rule (CERR):**

40 CFR Part 51, Subpart A - Emission Inventory Reporting Requirements, determines CER based on the emissions of criteria air pollutants from Type B point sources (as defined in 40 CFR Part 51, Subpart A), that emit at the CER triggering levels as shown in the table below.

Pollutant	Type B CER Triggering Levels <sup>1</sup> (tpy)	Pollutant	In-house Total Facility Triggering Levels <sup>2</sup> (tpy)	Total Facility Emissions <sup>2</sup> (tpy)
VOC	≥ 100	VOC	≥ 25	71.96
		HAPs	≥ 5	1.583

<sup>1</sup> Based on actual emissions

<sup>2</sup> Based on potential emissions

This facility does not emit at the CER triggering levels. Therefore, CER requirements are not applicable.

Although CER for the facility is not triggered, the Clean Air Branch requests annual emissions reporting from those facilities that have facility-wide emissions of a single pollutant exceeding in-house triggering levels. Annual emissions from these facilities are used within the Department and are not inputted into the National Emissions Inventory database. Since the emissions of VOC are greater than 25 tpy, annual emissions reporting for the facility will be required for in-house recordkeeping purposes.

**Compliance Assurance Monitoring (CAM):**

40 CFR Part 64

Applicability of the CAM rule is determined on a pollutant specific basis for each affected emission unit. Each determination is based upon a series of evaluation criteria. In order for a source to be subject to CAM, each source must:

- Be located at a major source per Title V of the Clean Air Act Amendments of 1990;
- Be subject to federally enforceable applicable requirements;
- Have pre-control device potential emissions that exceed applicable major source thresholds;
- Be fitted with an “active” air pollution control device; and
- Not be subject to certain regulations that specifically exempt it from CAM.

Emission units are any part or activity of a stationary source that emits or has the potential to emit any air pollutant.

Compliance Assurance Monitoring (CAM) is not applicable since the facility is not a major source.

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### Synthetic Minor Source:

This facility is a synthetic minor source as the facility would be classified as a major source without operational limitations, however, is classified as a non-major source through the use of operational limitations on the throughput of the petroleum truck loading rack and barge loading headers.

### Insignificant Activities:

1. Per HAR §11-60.1-82(f)(1)  
Two (2) portable storage tanks (300 gallons each) - additive storage
2. Per HAR §11-60.1-82(f)(7)
  - i. One (1) fixed roof tank no. 4134 (18,100 bbls) - low sulfur diesel storage
  - ii. Ethanol off-loading skid consisting of a hose, pump header, and related piping

### Alternative Operating Scenarios:

None proposed.

### Project Emissions:

#### Potential Emissions - Existing Equipment

Source	Potential Emissions, VOC (tpy)	Potential Emissions, HAPs (tpy)
Internal Floating Roof Tanks Nos. 4130, 4132, 4233 (gasoline)	7.04 <sup>1,2</sup>	
Fixed Roof Tank No. 4134 (diesel)	0.29 <sup>1,2</sup>	
Bottom Loading Rack (gasoline)	45.92 <sup>1,3,4</sup>	
Bottom Loading Rack (diesel)	0.09 <sup>1,3,5</sup>	
Barge Loading Headers (gasoline)	18.18 <sup>1,3,6</sup>	
Barge Loading Headers (diesel)	0.08 <sup>1,3,7</sup>	
Fugitive Sources (gasoline)	0.03 <sup>1</sup>	
Total Emissions (gasoline)	71.17	1.58 <sup>1,8</sup>

<sup>1</sup> Emissions data from Renewal Application No. 0382-04

<sup>2</sup> EPA Tanks 4.0 used to estimate tank emissions

<sup>3</sup> AP-42 Section 5.2.2.1(1/95) used to estimate emissions from loading operations

<sup>4</sup> Based on a throughput of 333,000 bbl/yr x 275.814 lb/1000 bbl = 91,846 lb/yr = 45.92 tpy

<sup>5</sup> Based on a throughput of 212,000 bbl/yr x 0.865 lb/1000 bbl = 183 lb/yr = 0.09 tpy

<sup>6</sup> Based on a throughput of 333,000 bbl/yr x 109.2 lb/1000 bbl = 36,364 lb/yr = 18.18 tpy

<sup>7</sup> Based on a throughput of 212,000 bbl/yr x 0.721 lb/1000 bbl = 153 lb/yr = 0.08 tpy

<sup>8</sup> Based on a 10% reduction of HAPS = 0.9 x 1.75 tpy = 1.58 tpy

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## Potential Emissions - New Equipment

Pollutant	Potential Emissions <sup>1</sup> (lb/yr)	Potential Emissions <sup>1</sup> (tpy)	Potential Emissions <sup>2</sup> (lb/yr)	Potential Emissions <sup>2</sup> (tpy)	Potential Emissions <sup>3</sup> (lb/yr)	Potential Emissions <sup>3</sup> (tpy)	Total Potential Emissions <sup>4</sup> (tpy)
VOC	599.75	0.30	10.43	0.01	31.29	0.02	0.33
Ethyl alcohol	286.59	0.14	9.91	0	29.72	0.01	0.15
Benzene	1.18	0.001	0.03	0	0.08	0	0.001
Cyclohexane	0.22	0.000	0.01	0	0.02	0	0
Ethylbenzene	0.12	0.000	0.02	0	0.05	0	0
n-hexane	1.48	0.001	0.02	0	0.06	0	0.001
Toluene	2.33	0.001	0.16	0	0.47	0	0.001
1,2,4 - trimethylbenzene	0.06	0.000	0.02	0	0.05	0	0
Xylenes	0.67	0.000	0.13	0	0.38	0	0
HAPs		0.003		0		0	0.003

<sup>1</sup> Internal Floating Roof Tank No. 4129 (Ethanol)

<sup>2</sup> Ethanol Tank Truck Off-Loading Skid

<sup>3</sup> Ethanol Injection System

<sup>4</sup> Ethanol Storage Tank No. 4129, Ethanol Tank Truck Off-Loading Skid, Ethanol Injection System

## Potential Emissions - Facility

Source	Potential Emissions, VOC (tpy)	Potential Emissions, HAPs (tpy)
Internal Floating Roof Tanks Nos. 4130, 4132, 4233 (gasoline)	7.04	
Internal Floating Roof Tank No. 4129 (ethanol)	0.30	0.003
Fixed Roof Tank No. 4134 (diesel)	0.29	
Bottom Loading Rack (gasoline)	45.92	
Bottom Loading Rack (ethanol)	0.02	0.0
Bottom Loading Rack (diesel)	0.09	
Barge Loading Headers (gasoline)	18.18	
Barge Loading Headers (diesel)	0.08	
Fugitive Sources (gasoline)	0.03	
Ethanol Tank Truck Off-Loading Skid (ethanol)	0.01	0.0
Total Emissions (gasoline)	71.17	1.58
Total Emissions (gasoline, ethanol, diesel)	71.96	1.583



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### **Air Quality Assessment:**

An Ambient Air Quality Impact Assessment (AAQIA) was not performed since fugitive emissions are not required to be modeled and there is no ambient air standard for VOCs.

### **Significant Permit Conditions:**

1. Petroleum storage tank no. 4129 will be subject to NSPS Subpart Kb since it will be storing ethanol.
2. The ethanol throughput limit for the petroleum truck loading rack will be 37,000 barrels per rolling 12-month period.
3. The gasoline throughput limits for the petroleum truck loading rack and petroleum barge loading headers were reduced by 10%, i.e., will be 333,000 barrels per rolling 12-month period.
4. The diesel throughput limits for the petroleum truck loading rack and petroleum barge loading headers shall remain unchanged at 212,000 barrels per rolling 12-month period.

### **Conclusion and Recommendations:**

Recommend issuing the initial covered source permit subject to the significant permit conditions noted above. A 30-day public comment period and 45-day EPA review period are also required.

Reviewer: Darin Lum  
Date: 5/2006